

## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 21018866	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/SE2005/000404	International filing date (day/month/year) 18.03.2005	Priority date (day/month/year) 19.03.2004
International Patent Classification (IPC) or national classification and IPC See Supplemental Box		
Applicant AB Tryggit et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 19-01-2006	Date of completion of this report 20-03-2006
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Form PCT/IPEA/409 (cover sheet) (April 2005)

CORRECTED

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000404

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Cover sheet

**International patent classification (IPC)**

**G02B 27/01 (2006.01)**

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000404

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

- ☐ the international application in the language in which it was filed
- ☒ a translation of the international application into English,  
which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☒ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000404

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-18</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-18</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-18</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

The claimed invention relates to a device and a system for displaying information in a vehicle. A relatively long optical path can be obtained by reflecting the image of an image creation unit in a reflecting surface that is located behind or beside the driver's head. The end section of the optical path extends between said reflection surface and a viewing surface. Further, the viewing surface is positioned directly above the field of vision that is actively used by the driver.

Documents cited in the International Search Report:

D1: WO 9408264 A1	D4: WO 9100674 A1
D2: FR 2844061 A1	D5: US 5469298 A
D3: DE 10227467 A1	

Documents D1-D3 have been reconsidered to define the general state of the art. Documents D4 and D5 also define the general state of the art.

Document D1 discloses an overhead head-up display device system that has an image display source (16, 16a in the figures) located above the operator of the vehicle. The images from the display source are directed to an optical combiner (14), which seems to be located above the driver's field of vision. The focal length between the image display source and the combiner is adjustable in order to display the virtual image at different locations in front of the windshield (page 4, lines 34-37), i.e. the display source could be positioned behind the driver's head.

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

Document D2 discloses a head-up display where several mirrors are used in order to provide a sufficient optical path (figure 2).

Document D3 discloses a head-up display where the image is projected onto a holographic beam combiner. The user views a virtual image of this combiner on a mirror arranged in front of the user.

Document D1 is considered to represent the most relevant state of the art. The subject-matter of claims 1 and 7 differs from D1 in that the device and the system comprises two reflecting surfaces, one of which is located in the windshield and the other behind the driver.

The subject-matter of claims 1 and 7 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as how to provide a less expensive solution than the optical combiner, but still provide a good image in the windshield.

By using a reflecting surface behind or besides the driver, the real image can be larger, as the display unit can be placed away from the immediate optical path between the first and second reflecting surfaces.

None of the cited documents disclose a head-up display having two reflecting surfaces, one of which is located in the windshield and the other behind the driver. Therefore, the invention according to claims 1 and 7 is considered to involve an inventive step (Article 33(3) PCT).

The remaining claims are dependent on claims 1 and 7, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

The invention is industrially applicable.